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The Culling: Creating an Immersive Video Game as a Framework for Audience Participation and Philosophical Engagement

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The Culling: Creating an Immersive Video Game as a Framework for Audience Participation and Philosophical Engagement

by

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Dedication

For anyone who has been made to feel less than. You are not alone.

Acknowledgements

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me anyway. Finally, to my UT colleague past and present: you inspire me with your talent, creativity, hard work and most of all, your spirit. Go Team 17!

Abstract

The Culling: Creating an Immersive Video Game as a Framework for Audience Participation and Philosophical Engagement

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The University of Texas at Austin, 2017

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The rhetoric of the Trump campaign and now administration has stoked the fires of xenophobia in America; *The Culling* seeks to confront this fear of others through an immersive performance experience. This qualitative reflective practitioner research study describes *The Culling*, an MFA thesis project that positions the audience as actors in an interactive, immersive theatrical video game located in a xenophobic, futuristic dystopia. Through an examination of the relationship between technology, art, and empathy, this study considers the relationship between interactive projections and physical and philosophical engagement for the audience members. This descriptive analysis shares the inspiration for, creation of, and resulting response to the project. The project specifically asks two questions:

1. How can design be used to create audience movement?
2. How can paradigms of participatory theater be used to create philosophical engagement through an experience of prejudice?

To answer these questions the author created an immersive, interactive video game that also included elements of theater. The game was set in a dystopian future where players must solve puzzle games to prove their humanity. Drawing on elements of theater design, game design, playwriting, and science fiction, *The Culling* placed the audience inside the story world both physically and emotionally.

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Chapter 1: Introduction

A friend and I were talking recently about the definition of joy. What is it and how do we find it? My first thought was of children on a playground. When children play, they are focused singly on their task, on being inside themselves and inside the moment. Like a child, joy comes to me most often when I'm focused on my body – on making my physical form express my interior thoughts. Two and a half years ago, the only thing I knew about my thesis was that I wanted other people to experience that joy.

As the thesis grew, however, I recognized my own need to emotionally engage with the work. Spending almost two years on a single project, one has to find something they can pursue with a deep passion. Through the course of my graduate studies, I have come to the conclusion that my passion lies in making art that changes people's hearts and minds. After all, "What starts here changes the world."

This document shares the story of my MFA thesis project. In my practice-based research I asked, "How can I use my skills as a projection designer to create an experience that encourages both *physical* and *philosophical* engagement?" To answer this question I created an immersive, interactive theatrical video game. The game drew on dystopian narratives to talk about the experience of being "othered". In this paper I use the term "othered" to mean being made to feel that one is considered in some way outside of the majority. I also chose to gather information from my audience through a series of anonymous survey questions. I used a qualitative research process to analyze my data and draw some conclusions about how the audience engaged with my performance. While I had the invaluable opportunity to perform the piece in three different iterations (first in a series of public performances at the University of Texas Student Activity Center, once for

family audiences at an event called Explore UT, and lastly at the South By Southwest Interactive Festival for the "UT Live" event through the College of Fine Arts), in this paper I will limit my assessments to the first iteration at the Student Activity Center.

The rest of Chapter One gives context for the project, not only in my personal background as it pertains to the work but also how the work was affected by outside influences in politics, art and technology. Chapter Two lays out the creation process chronologically, as well as describe the final results. Chapter Three contains my analysis of the qualitative surveys, the limitations of the work and my recommendations for future research.

BACKGROUND AND SIGNIFICANCE

This work examined the creation of a performative experience through two major lenses:

1. The use of interactive technologies to create audience agency through **physical engagement**.
2. The use of story and audience involvement to create – through the **experience of being "othered"** – philosophical engagement.

Physical Engagement: Why and How?

Active Investment

I began working in the theater as an actor and a dancer. My physical presence onstage was paramount. Each choice I made with my body was read by the audience as meaningful; therefore it needed to come from a place of meaning within me. I felt most emotionally engaged and expressive when I was purposeful in the *physical* expression of those emotions. This was true as a child dancer, and continues to be true of me as an adult

in my aerial dance practice. I find I am most centered, most at peace when I am hanging from a trapeze or climbing up the aerial silks. For me, there exists a powerful connection between physical and emotional engagement.

It is this connection I wish to share with my audience. In Western theatre, the vast majority of our audience experiences are static, passive. We sit in a seat and observe. How, then, can we as creators break that paradigm? And what does it mean when we do? While it is entirely possible to emotionally engage with a story one is passively watching, I wish to explore the possibilities of physical action. A guiding question for this project was therefore, **"How can design be used to create audience movement?"**

Bringing New Audiences to the Theater

The average American spends a median of 1 hour 40 minutes a day, or almost a sixth of their waking hours, on social media (Davidson). Whether the average American thinks of it in these terms, that is time spent curating about their personal story. We all have more agency than ever in how we tell our stories to the world at large. Many theaters, in a quest for making work that is relevant to today's world (and to bring in new, younger audience members), try to engage their audiences through these same social media. But, to my mind, asking audiences to type on their phones during performances only removes them from the world of the play, rather than making them further engage with it by encouraging them to look at their screens instead of the action.

Even more immediate forms of interaction, such as asking the audience questions or to vote on what choice a character should make, still make them only tangentially significant to the story. They are nonetheless positioned as audience, outside the world of the play. Neither of these methods engages with what makes social media so powerful - user agency.

One of my guiding questions then became, **"Will putting the audience in the position of the actor and giving them agency over the narrative create the physical and emotional engagement I am looking for?"**

Virtual Reality as a Tool for Group Meaning-Making

My goal was to make the audience necessary to the narrative: without them the play could not exist. But as we could not know what the audience would do, the play and the world had to react to them. Thus I concluded that interactive technology would be necessary to the piece. Interactivity is a wide field all its own, but in this paper I define interactive technology as a computer-based technology which reacts to unrehearsed action in real time. For me the use of interactive technology was not the purpose of the thesis. Rather, it was a useful tool in exploring physical engagement and audience agency. As such, I will only describe in this paper the technology utilized as it applies to the audience experience.

In order to find the best use of interactive technologies to achieve my goals, I drew heavily on the growing areas of virtual reality and augmented reality. I define virtual reality, or VR, as an experience in which everything the participant sees and hears is entirely digital – none of it exists on the physical plane – generally achieved through the use of goggles and headphones. I define augmented reality, or AR, as a mix of digital and physical worlds. AR is often created through a camera on a digital device (such as a phone or iPad) where one can see both the camera's view of the "real" world and digital objects laid into that world, which appear only on the screen. Both of these areas had much to offer my research, but both also necessitate the use of intermediary equipment (such as goggles or a phone), which the user must wear or hold.

My feeling was that these intermediary devices distract players from their physical presence, and the presence of others. My desire was to create a group experience, a sense of community. Thus it had to be a fully immersive environment that would feel more "real" as it would not require these intermediaries.

In my research into the development of digital environments, I discovered that a cave automatic virtual environment (often referred to as CAVE) was the predecessor to VR goggles. CAVE's consist of three to six walls, onto which the world of the (usually) video game is projected. The player/audience would then sit facing the "front" wall and the world of the game moves around them. Generally a traditional game controller was used for the player to interact with the game.

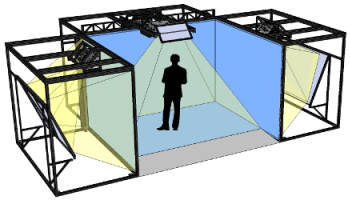


Figure 1: The VisCube C4 CAVE System by Visbox, Inc.

This reminds me of an exhibition I saw in the summer of 2015 at Paris' Palais de la Découverte called XYZT: Les Payasages Abstrait (Abstract Passages) by Adrien M. and Claire B. In it they used interactive projections to create demonstrations of different principles of physics. The most immersive portion of the exhibit was a cube the participant could enter. There were projections on all four walls that moved when one's hands got close to them. The most unique part of the experience came from the materials used: the walls were made of a translucent fabric. Because it was entirely dark in the

room, the projections seemed to simply float in the space between those inside the cube and those outside it. It was quite magical.

Illustration 1: Interactive projections on a translucent cube in XYZT: Les Payasages Abstrait

Lacey Erb, my colleague and the other projection designer my year in the Integrated Media program, saw the same exhibition and was equally impressed with the experience. At this time, she was trying to find a structure for the immersive dance piece she hoped to create for her thesis. We both kept coming back to "the cube". Finally we realized: we should create our own cube together. By joining forces we didn't have to be alone in the creation of the scenery, the projection system and many other production concerns such as space reservations and promotional materials. And there was something to be found in using the same space in entirely different ways. Thus, "Two Projects, One Cube" was born.

Ultimately I created an experience that drew from all three sources of inspiration: VR, AR and CAVE. I designed a structure similar to AM-CB's. "The Cube", as my team began to call it, was very closely related to a CAVE environment, but also drew on principles of AR. Because it was translucent, the audience was able to see the digital world of the projections layered over the actors outside of the cube. Therefore the physical and digital environments merged with no objects for the audience to wear or hold; only their presence in the space was necessary.

An Unforeseen Opportunity

Soon after Lacey and I decided to team up, an opportunity was presented to us. The University of Texas College of Fine Arts was invited to share a short session at the South By Southwest Festival (SXSW) in downtown Austin, TX in March of 2017. The session was part of two days of presentations by each of the university's colleges titled "Designing an Arts College for the Future". As such, they wanted to present some student work that they felt showed of the intersection of art and technology. Our advisor, Sven Ortel, presented our ideas to them and they said yes!

I was thrilled for the opportunity, not only because it was an exciting career opportunity but also because it was a fantastic opportunity for continued research. I was originally thinking of structuring my piece slightly differently for each day of performances so that I could approach the question of audience agency from multiple angles. With three separate iterations of the piece, this aspect of the research became built in. I had at this point already decided that I wanted, for the first round of on-campus performances, the players and the actors to be the only people in the room. This way they could be fully immersed in the world of the game, the only witness to their own experience. But this was not possible at SXSW – the whole point was for many people to

experience it at once by watching a single "performance". This gave the chance to explore not only what it is to be an audience member placed as performer, but also what it is to passively watch such a performance. Through the performance we make the participants feel less than; how would spectators feel when they realized that they had sat idly by while others were mistreated?

"Othering" the Audience: Why and How?

Personal History Shapes Current Art

I knew I wanted to leave the audience thinking about an issue that I care about. Over the course of my graduate studies, I have come to realize how firmly feminist I am. I have always looked up to women like Audre Lorde and Gloria Steinam; modern heroes of mine include Tina Fey and Mindy Kaling for creating their own work that is expressive of their voice, and for convincing rooms full of men to fund it. So the creation of engagement with feminist ideas became a guide for the kind of experience I wanted to create. After all, "When people play games, they have an experience. It is this experience the designer cares about. Without this experience, the game is worthless". (Schell 40) At first I pondered creating a game that followed in the footsteps of an historical feminist icon; the game would then become a lens through which they can experience the highs of these women's achievements while also experiencing their struggles. I read about Marie Curie and Amelia Earhart. Both of these women overcame huge gender barriers in order to reach the top of their fields. Both have fascinating stories that would play beautifully on stage, but ultimately I couldn't figure out what the game would be, only the story. Following an historical timeline doesn't leave a lot of room for the audience's choices to

change the outcomes, thus the game would lack the agency I am looking to create. These women deserve to have their stories told, but perhaps film or traditional theater would be a better genre.

Another issue was that I wanted the experience to be more universal. It is my belief that humans are all different, but equal. Focusing on our differences makes us treat each other as less than equal. I am a woman, and also a Jew. Growing up in a very small, very Christian town made me feel like an outsider. I experienced a large gamut of anti-Semitism, ranging from kids yelling in the halls that I was "going to burn in hell," to friends asking - with seemingly no animosity - "Where are your horns?" Judaism was my connection to the feeling of being "other", a feeling many Americans know all too intimately. When I told these stories in college, I was met with incredulity. "No way!" some said. "People don't still believe that stuff!"

Indeed, after leaving that small town I rarely came into contact with people for whom my Jewish-ness was strange. Yet I am still "other": I am a woman. It has grown harder and harder for me to ignore that for so many men I work with, the simple fact of my gender means I am less capable than them, less deserving. Whether it is based on our gender, our sexuality, or the color of our skin many of us know what it is like to feel "othered". Sometimes othering is clear – in hate speech, for instance – but most of the time it is more insidious than that. A look, a slight, not getting a job (or even an interview), comments about one's style, hair, or skin: we are often made to question if the offense is real, or if we are simply being too sensitive.

Confronting Fear Through Performance: An Examination of Xenophobia

Last year I realized that these small incidents are not small at all: they are a window into something that is at the root of the American experience, no matter which

side of that experience one might be on. I realized this when Donald Trump became the Republican nominee for President of the United States, and over again when he won. No one thought it could happen, least of all the Republican establishment. Trump's rhetoric felt and continues to feel not just offensive, but dangerous. He announced his campaign with a speech that included the statement, "When Mexico sends its people, they're not sending their best. They're bringing drugs. They're bringing crime. They're rapists..." (Campaign Launch, New York) It seems he cannot even talk about a woman without including commentary on her looks. In discussing the other Republican candidates in the primaries, Trump said this to a RollingStone.com interviewer regarding Carly Fiorina: "*Look* at that face! Would anyone *vote* for that? Can you imagine that, the face of our next *president*?!" (Solotaroff) The fact that this man could even become a major party nominee for the highest office in the land (let alone win that office) reveals a deeply rooted fear of those who are other in America today.

It is hard to hear Trump's rhetoric of hate and not be offended. Yet while I was shocked at his win, based on my upbringing I could not actually say that I was surprised. I saw thousands of people showing up for his rallies, true believers that he would solve all their problems. To them he was not a politician, but a messiah. They believed him when he told them, "I will give you everything. … I'm the only one." (Campaign Rally, North Dakota) He may not have been wrong when he said, "I could stand in the middle of Fifth Avenue and shoot somebody and I wouldn't lose voters." (Campaign Rally, Iowa)

It is impossible to listen to him and not acknowledge the similarities to the Nazi party rhetoric. They blamed the Jews for taking Germans' jobs and wealth. He blames the Mexicans and Chinese for the same thing. Nazi propaganda "reminded [the Germans] of the struggle against foreign enemies and Jewish subversion" (United States Holocaust

Memorial Museum, ushmm.org). Gordon Allport, considered in psychology to be an important thinker on the nature of prejudice, said, "Hitler created the Jewish menace not so much to demolish the Jews as to cement the Nazi hold over Germany" (41). For Trump, *Muslims* are the foreign enemy who threaten to both attack us and subvert our culture. Of Muslim refugees Donald Trump has said, "They're trying to take over our children. ...They're pouring in and we don't know what we're doing." (Saint Anselm College)

Trump almost always equates Muslims with terrorists. He implies that President Obama is actually a Muslim: "I wonder if President Obama would have attended the funeral of Justice Scalia if it were held in a Mosque?" (Trump, Tweet). Therefore our President serves terrorist goals: "Lock your doors folks, OK? Lock your doors. No, it's a big problem… We have our incompetent government people letting 'em in by the thousands, and who knows, who knows, maybe it's ISIS." (Campaign Rally, Rhode Island) Since September 11, 2001 the fear of terrorism has been one shared by all Americans. Tapping into a deep national fear and claiming to be the only one who could fix it is exactly how Hitler rose to power. I was and am frightened, both for the future of my country and my future in it. I found I could not make a story about anything but this. My piece had to focus on hate and acceptance.

This type of hate is born of fear; it is natural to fear what we do not understand. Yet many people have no idea what it is like on the other side of this fear. They fear others for being different, but they have no idea what it is to be feared just for being. What if there was a way to impart this experience? To not just talk about it, or show it, but create it? I knew I wanted the audience to walk away pondering a deeper question,

and when Trump became the Republican nominee, I knew that question: **What does it mean to be other?**

Prejudice and Being "Othered"

Yet this only led to more questions. How can I make the audience have fun while also engaging with this question? And what "other" do I mean? Being "other" could be related to gender, race, skin color, religion, weight, income or even eye color. But I didn't want to focus on any one type of "othering." There are many ways in which we see people as being different from ourselves, but no matter how others are different from us we don't have to hate them. I wanted to create a universal experience of being "othered". In Gordon Allport's classic psychological treatise *The Nature of Prejudice,* he stated:

> Although we could not perceive our own in-groups excepting as they contrast to out-groups, still the in-groups are psychologically primary...Hostility toward out-groups helps strengthen our sense of belonging, but it is not required....The familiar is preferred. What is alien is regarded as somehow inferior, less 'good,' but there is not necessarily hostility against it...Thus, while a certain amount of predilection is inevitable in all in-group memberships, the reciprocal attitude toward out-groups may range widely. (42)

When those in power have begun to see people who are different from them as somehow less than human, it has resulted in some of the worst atrocities in history (the Holocaust, Japanese internment, genocide in Chechnya, etc.). I wanted this experience to have overtones of these historical and current instances of xenophobia. I'd like the audience to walk away feeling that they have a more personal understanding of the consequences of that fear.

In discussing the problem of finding a universal way of performing prejudice with my advisor, Sven Ortel, he threw out the notion of setting the game in the future. At first I was dismissive of the idea, but it grew on me. After all, I grew up reading science

fiction. *The Handmaid's Tale* by Margaret Atwood was one of the first novels I ever read, and it is still a favorite of mine. Classic dystopian novels like *1984* or *The Handmaid's Tale* take current events and project them forwards. Science fiction can set current societal concerns in stark relief, or reframe them by postulating a changed society or new capabilities. By placing current narratives of racism or xenophobia on a society that does not yet exist, it can be a more universal narrative. Instead of referencing only the Holocaust or the "Muslin Ban" (a.k.a. Trump's Executive Order: Protecting the Nation from Foreign Terrorist Entry into the United States), I can use a dystopian future to bring the issue of hatred born of fear to the fore without being limited to a specific instance.

Chapter 2: A Story of Process

In this section I discuss chronologically the process of going from the abstract idea of creating an interactive and theatrical video game experience to the real, performed piece. This chapter discusses much of the decision making process – both creative and technical – and how those dual aspects of the project affected one another. I also give a summary of the piece in its finished form including the performance script.

FINDING THE RIGHT PERFORMANCE MODE

In the year and a half of research leading up to the thesis performance, I explored many possible performance modalities. While the search for the right method with which to research my questions around audience engagement was wide-flung and wandering, it was an integral part of the creation process.

The only thing I knew in the beginning was that I wanted the audience to move, to physically participate in the piece. I needed them to want to become players rather than simply observers. I had begun learning to paint and was discovering how physical an activity it is - especially when working on a large scale. I thought, "This is a thing I can share with people!" So my first idea was a projection installation where people could paint digitally by moving around the space. This fulfilled my wish to create movement and give a new experience of art, but ultimately I found it lacking. I realized I could not create the desired philosophical engagement without story.

I believe that storytelling is at the core of the human experience. We spend our whole day telling stories to each other. Stories are how we teach our children morals and values – whether the story is of Osiris, Jesus or any other of the multitude of gods or

myths that have existed throughout human history. It is through story that we gain an understanding of the world, and the people, around us.

Story is ultimately the reason I love theater. It is a powerful vehicle for creating understanding and empathy. My next idea, then, was to use projections in the creation of a theatrical adaptation of one of my favorite books from my childhood, "The True Confessions of Charlotte Doyle." The story is of a young girl who is put of a ship from England to America in the early 1800's. She is the only female on the ship, and she and the captain are the only members of the gentry. In the middle of the Atlantic, the crew mutinies and Charlotte is caught in the middle. She leaves her old life behind and becomes a member of the crew. The story has storms and betrayals, themes of class and feminism. The are also several key scenes in which Charlotte climbs the main mast and everyone swings around the ship's rope, which appealed to the circus artist in me. But again, something was missing.

I could not figure out how the audience would participate. I wanted them to get up and move, but how to do that within the stringent framework of a traditional theatre script? So, I went back to the drawing board.

The goal was to place the audience as actor. But most audience members would be uncomfortable with being brought up on stage, told that they are now part of the show. At this point, I was taking a class called "Computer Graphics for Film & Games." As this class explored the creation of video games, my eyes were opened to a new framework for story telling. As of 2015, 155 million Americans played video or computer games (*Essential Facts* 2). Video games create worlds and stories with which one can interact. They are very often told from the first person. In them, the player can often affect the outcome of the narrative (i.e. they have agency in the world of the game). Thus gaming

seemed like the perfect framework for an interactive experience that contains story as it can allow the audience to have agency over the narrative in a way that is familiar to them.

GAME CREATION: CHOOSING THE ESSENTIAL ELEMENTS

Even having chosen a structure, there are many more questions to answer. What kind of game is it? What is the story? What kind of world am I creating? At the core of all of these questions is this one: what do I care about?

I am admittedly NOT a "gamer". There are very few video games I have ever truly loved. The first, and still the one I love best, was *Myst,* by Robin and Rand Miller of Cyan, Inc. *Myst* was a deeply involving game that launched a new gaming genre (1st person adventure). In *Myst*, the player opens a book and stares through a portal into another world. They fall inside and get lost for hours, exploring and solving puzzles, trying to piece together a mystery that has led to two brothers being held captive in their own books. Videos and books found along the way tell the story of two feuding brothers who learned from their father how to create new worlds inside of books. It is engaging not only because of the beautiful graphics and haunting music, but also because it forces the player to engage with story: the decision of who to rescue could alter the ending of the game. It was probably the only video game I've ever become obsessed with - my brothers and I played for hours.

Illustration 2: A screenshot from *Myst*

In dissecting what it was that I loved about *Myst*, I came up with three basic elements: intellectual engagement, agency over story, and the sparking of curiosity. *Myst* sparked my curiosity by creating a new world to discover; the world felt real, beautiful, massive and entirely different from my own. It gave me agency over story by ultimately letting me choose which brother to save and engaged my intellect through its brilliant puzzles.

This reflection brought me a step closer to knowing what my game should be. I wanted to use puzzles to create intellectual engagement. There must be a story the audience discovers - and can possibly effect - throughout the game play. And I needed to create a world they can fall into.

I began reading a book about the process of creating video games called *The Art of Game Design: A Book of Lenses* by Jesse Schell. In it, Schell breaks down the decisions necessary to create a game into four basic categories: mechanics, technology, aesthetics, and story.

> 1. Mechanics: These are the procedures and rules of your game. Mechanics describe the goal of your game, how players can and cannot try to achieve it, and what happens when they try…

> 2. Story: This is the sequence of events that unfolds in your game. It may be linear and pre-scripted, or it may be branching and emergent…
>
> 3. Aesthetics: This is how your game looks, sounds, smells, tastes, and feels. Aesthetics are an incredibly important aspect of game design since they have the most direct relationship to a player's experience…
>
> 4. Technology: We are not exclusively referring to "high technology " here, but to any materials and interactions that make your game possible such as paper and pencil, plastic chits, or high-powered lasers. The technology you choose for your game enables it to do certain things and prohibits it from doing other things. The technology is essentially the medium in which the aesthetics take place, in which the mechanics will occur, and through which the story will be told. (71-72)

I was happy to realize that I had already begun to make some of these decisions. For technology, I had decided to use multiple projectors on a translucent cube to create a CAVE-like environment. Kinect sensors would be utilized so that the audience/players could physically interact with the game. But should there be physical objects in the space, or only projected objects? Does the audience interact with live actors, or pre-filmed characters in the projections? For mechanics, I knew I wanted to make a puzzle game, but what are the puzzles? As far as aesthetics go, I knew I was attracted to imagery that is very digital looking, and black and white. This is because through experimentation, I had discovered that this sort of high contrast imagery is what shows up best on translucent surfaces. Translucent materials by their nature let a lot of light through, so what we see is only the small amount of light that is reflected back to us. Thus it is logical that one would want to throw as much light at the surface as possible. White light is a combination of all light waves, thus the brightest image one can get out of a projector is a fully white one. Alternatively black is the smallest amount of light we can get out of a projector: the areas of the fabric that are receiving black will have the least light to reflect and will disappear. I was interested in the edges of the cube (and therefore the world of the game) disappearing. If the audience cannot see the edges, then they do not know

where the world of the performance ends and the "real world" begins. But I also wanted the imagery that is projected to be bright and clear. Thus, black and white imagery seemed best.

But story and aesthetics seemed inextricably linked to me. What world makes sense in a black and white environment? Certainly some of my ideas for settings – Ancient Rome, modern day Israel, 1940's Germany – would not make sense here. More than that though, I found them to be too specific. The experience must contain resonances of cultural conflicts both current and historical, but in a way that is abstracted into universality rather than factually referential. This is why I chose to set the game in a dystopian future.

But at this point I hit a wall. For weeks I tried to come up with a story, set in a dystopian future, around which I could build this game. Sometimes I thought I had it, but the ideas just weren't coalescing. I had to move on to a different area of the game, so instead I focused on mechanics. As previously discussed, I wanted to do a puzzle game, but now I questioned that decision. I was struggling with the seemingly opposing goals of giving the audience agency and creating the experience of being "othered". I wanted to give the audience power by making the experience as participatory as possible. On the other hand, when a person is discriminated against, their power is taken away. They lose agency. So it is necessary to both give the audience agency and take it away. In figuring out how to create these two ostensibly contradictory experiences, I went through many other iterations of the game world before finding my ultimate solution.

One option considered: a first-person shooter, where the audience is told that they are soldiers killing enemies on a distant planet only to find out that the "enemy" is actually the native population that the government is clearing out so that they can steal

the natives' resources. Ultimately this approach feels too violent to me, and also too time consuming for the scope of my project. Character creation and animation is difficult work that often is divided amongst several people at a video game company. But there is a seed of something useful here – the subversion of expectations. If I set up the game so the audience believes that by winning they can gain power but then ultimately subvert that expectation, I could give them agency and then take it away.

In a flash the idea came, nearly fully formed. "The Culling" will be set in a dystopian future, where artificially intelligent beings called 'Imposters' have infiltrated the human race. The audience must solve puzzles in order to prove their humanity and not be "culled". Like the Jews under Nazi rule, they will be given a number and then referred to only by their number. While the audience believes they are being given agency to prove themselves human, their humanity is actually being slowly chipped away from the moment they volunteer to play. There will be three levels and six players (the maximum number the Kinect can track). At the end of each level, one player will be pulled out (or culled) and taken to a holding area. They will wait in the holding area for the rest of the game play and will be given no information about their fate, left to imagine it for themselves. The idea is similar in many ways to another favorite dystopian novel of mine, *The Hunger Games* by Suzanne Collins. In the book, there are yearly games in which one representative from each District of the country fights those from the other Districts to the death. The government gets these people to volunteer for the lottery by which players are chosen by offering a certain amount of food vouchers per number of times one enters their name in the lottery. While players are technically volunteers, since the government rations the food supply to the point of famine there is actually nothing voluntary about it. Even once the players enter the arena, the game is rigged so that

everything the players do is not so much choice as eventuality. So too in "The Culling", no matter how well or badly you play, your fate is the same: death.

PUZZLING OUT THE TECHNOLOGY

All this time I had been struggling with the story and aesthetic decisions that must be made, I had also been struggling with the technology. It is true that I had made decisions about the aspects of the technology that would actually make the game visible to the audience (i.e. projectors and surfaces). But what of the technology necessary to actually create what they see and make it move with them? I knew that I was creating a video game, and that Kinect sensors were built for use with video games. So a games engine (formerly known as games editors) seemed a logical choice. Game engines are tools which allow designers to create a game with less complicated programming. The problem here was that I didn't know how to program a game engine. So I explored other options. One I was especially interested in was TouchDesigner. TouchDesigner is a node-based programming environment that is built for creating generative visuals. I knew that it comes with robust, built-in nodes for the Kinect and I had a basic understanding of how to use it; all this makes it appealing.

I had also begun to narrow down my game mechanics. Knowing that I was creating a puzzle game, I had to come up with the puzzles. The first idea that occurred to me was to create a slider puzzle (example below) where as the players move around the space the pieces follow their movements. They must walk around the room to slide the pieces into place.

Illustration 3: An example of a slider puzzle.

This seems like a relatively simple, straightforward game. Yet as I explored the necessary steps for programming this interaction in TouchDesigner, it became more and more clear that it would be much simpler to accomplish in an environment that is built for gameplay, like a games engine. So I finally faced the inevitable decision before me: should I spend a lot of time trying to do something with TouchDesigner for which it was not intended, or switch to a games engine I did not know how to use? Deep down, I knew the right choice: a games engine. I had already done some research into which engine to use. I knew I liked Unreal Engine for its excellent rendering of light and its node-based programming environment called Blueprints (this would save me from also having to learn a coding language like C++). But it was already November; Lacey and I had a space lined up for a performance at the beginning of February. We planned to set the cube up in a classroom over the break and spend those six weeks testing, programming and devising the pieces. I waited too long to pull the trigger on this decision and there was no longer

time for me to teach myself Unreal Engine before winter break. I needed to find a programmer ***immediately***.

In addition to that, Lacey and I still needed to figure out how our system would work. I was somewhat certain that I would like to use a program called D3 for playback. D3 is a 3-D, timeline based playback system, which was originally designed for pre-visualization. In it, one can import a 3D model along with its UV map. The program will then wrap any texture (i.e. moving or static imagery) onto the object according to the map it is given. UV refers to the horizontal and vertical coordinates of a pixel in an image. UV is differentiated from XY in that XY refers to a spatial coordinate while UV refers to a coordinate within a resolution. So a UV map is a map that tells a 3D program how to place a 2D texture onto a 3D object. For example, the figure below is the UV map I created of our cube in Blender. It looks very much like 5 sides of an unwrapped cube because that is precisely what it is.

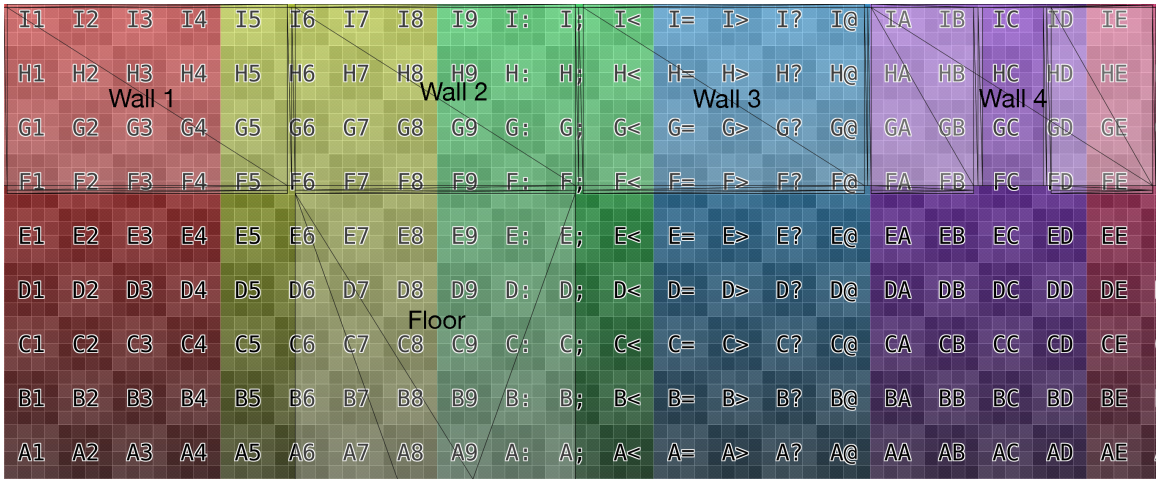


Illustration 4: UV Map of our Cube set

Now take a look at the 3D model with this texture wrapped onto it.

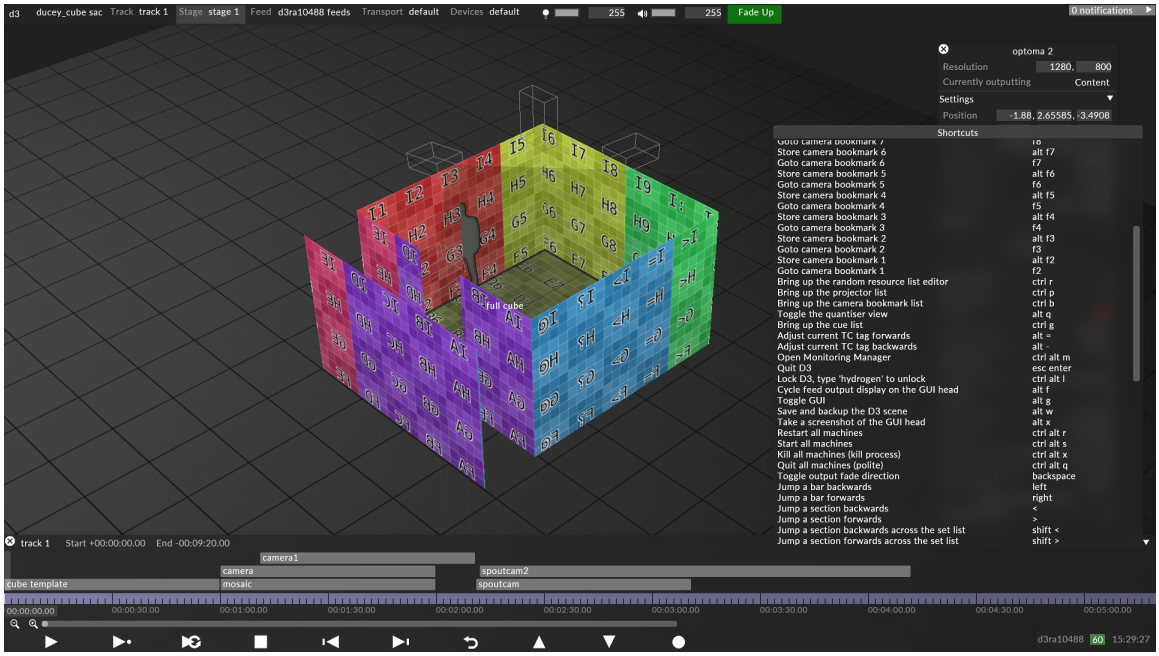


Illustration 5: The UV Wrapped Cube in D3

We can see that I6 is placed in the top left corner of the wall opposite the door. If we create all content using this map (i.e. matching its resolution), we can know exactly where each element of the 2D graphic will show up on the 3D object: in this case, The Cube.

Unfortunately D3 and Unreal Engine do not have any built-in pipelines to talk to one another. In fact they cannot even run on the same computer at the same time. So we needed to devise a way to get the imagery out of Unreal Engine and to D3 for projection. I found a plug-in called Spout, which is essentially a way to send a 2-D texture from one program to another. (Plug-ins are essentially mini-programs that can be added to other programs to increase their capabilities.) I found an example of someone using Spout to project a game while it is played in Unreal and decided that this was the way to go (Zimadev). Spout can even send the texture over a network, solving the problem of the

separate computers. Essentially we set up Spout nodes in Unreal Engine that act as virtual cameras. The 2-D image the camera sees is then be sent over the network to D3. Please see Appendix A for a complete system diagram.

WORKING WITH COLLABORATORS

Up until now, I had been working alone. I had been often talking about the project with friends and advisors, somewhat thinking out loud. But I didn't yet have anyone to truly collaborate with. As the project became clearer in my mind, the roles I needed to fill on the team had clarified as well. I needed at least one Unreal Engine Programmer. I would need several actors: someone to introduce the world to the audience (which I did through a video they watch in the lobby), someone to check the audience members in and give them numbers, and a "guard" or two to direct the audience in the room and pull them out one by one. As winter break and the bulk of my devising time approached, finding these collaborators was of paramount importance. Clint Sawin came on board as my Unreal Engine programmer, but his expertise with the engine was based more in laying out level maps and layering visuals than in programming interactive game mechanics.

Games are divided into "levels" just as books are divided into chapters; they break the game up into manageable chunks and the knowledge from one is necessary to complete the next. When a game involves a player moving through a world, that world (and level) must be mapped out. Unfortunately level mapping is that necessary a skill for a game which takes place all in one room. With Sven's help I reached out to other departments in the College of Fine Arts seeking a programmer with more coding skills. Unfortunately, no one was willing to work over the break, so Clint and I were on our own on this front.

The good news is that I had been able to find actors. Eli Weinberg and Chad Ramsey came on board to play the guards. I scheduled rehearsals with them and quickly wondered, "What are we going to rehearse?" Almost all of their action would be *interaction* with the audience, who we did not yet have. These December rehearsals then become brainstorming sessions. We went over the initial script I had written and poked holes in it, asking ourselves, "What is the audience experience this choice creates?" and "Does it achieve our stated goal of "othering" them?" One such hole was the name "Imposters". Eli pointed out that this name has automatically negative connotations. Ultimately the Imposters are the "big bad" (to borrow a phrase from Joss Whedon) of this world, but we did not want the audience to know that right away. So what to call them? We went through many ideas, all based in the idea that they are copies or imitations of humans. Going through the thesaurus, I was attracted to the word "mimesis". It comes from the Greek word for imitation. It is outside common usage, but as old copy machines were called mimeographs, I think people have a general sense of its meaning. I dubbed these artificial beings "Mimeos."

This was one of many such discoveries that came about in our "rehearsals". My actors, along with Clint, helped me think through the world and the action of the play/game. For I realized, rather belatedly, that it is both a game *and* a play. This is a story we are telling with words and bodies in space; it must have a plot, diction, characters, thought, music, and spectacle – all of the elements that Aristotle uses to define theater in the Poetics (Part VI, par. 4). I am creating a video game, but I am also writing and directing a play. I wonder, not for the first time, "What have I gotten myself into?"

TECHNOLOGY AND STORY: A SYMBIOTIC RELATIONSHIP

Beginning the programming process, Clint and I started by creating the first puzzle. Since the puzzle depends heavily on how the players move in the space, we spent a lot of time walking around the cube. One of the first areas to tackle was figuring out how the Kinect tracks people. The Kinect recognizes a player by the shapes that make up the body and their relative position to one another. We found it is especially good at finding faces and hands; if people walk into The Cube and face the Kinect sensor with their hands out, it will "catch" them every time. After it catches them, the Kinect does two things useful for programming: assigns the player an index number and tracks each joint of their skeleton in XYZ space.

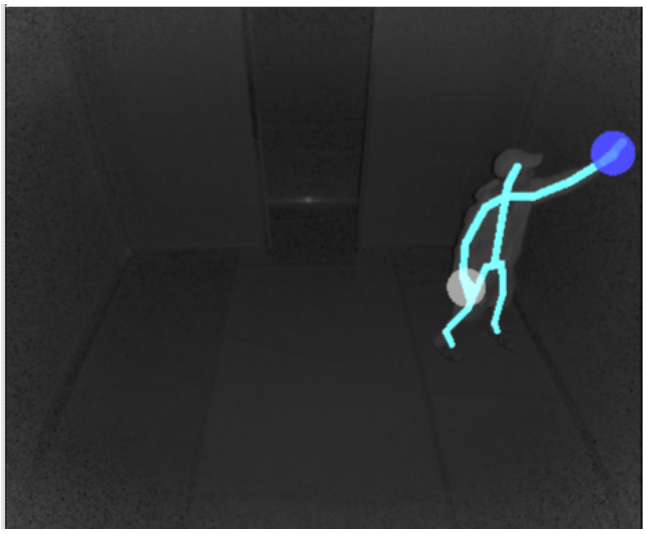


Illustration 6: A view of the Kinect skeleton

The very first time we tried to put six people (the number of players we were hoping for) inside the cube, we realized we needed to cut it down to four. This helped greatly from a programming perspective as there were fewer players to track, but also the room was just too crowded with six people! I realized this additionally helped with our

story structure. I had three puzzles planned. After each level a player would be culled. So cutting down to four players from six could help us structurally by making it so that by the end, only one "winner" remains.

The first level is the slider puzzle game where the audience creates the below symbol together.

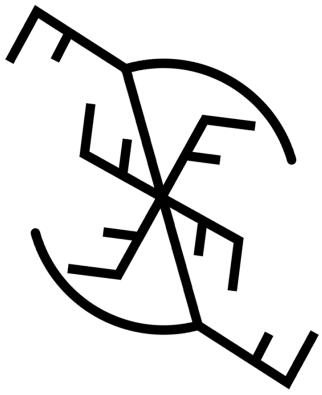


Figure 2: A symbol I designed for the game.

The 2D symbol then becomes a 3D symbol, which breaks apart and turns like a mobile. In Level Two, the players have to move around the room until they find the correct perspective from which to view the mobile so that it comes back together as a symbol. An animation of glowing lights moves along the walls, solidifying into a symbol that is the hint for Level Three. In this puzzle the remaining players must use levers on the walls to move sliders into position to create the symbol that just appeared.

As we began thinking through Level Two, we again ran into a space concern. To create the illusion that the player is looking at a 3-D object floating in space, their perspective view must change as they move around. While the object is actually 3-D in the game engine, what is projected is a 2-D virtual camera's view of the object. So for

this perspective trick to work, that camera view must move with the player. This creates a space concern: the Kinect sometimes loses player indices, or reassigns them, when players cross in front of each other (using the Kinect's position as front). Thus each player needs his or her own distinct playing areas to move in. If we leave this as Level 2, with a symbol on each of the three full walls, the player facing the wall the Kinect is above would be constantly walking in front of the other two players, making it impossible to guarantee the maintenance of the player indices. This is a major problem. For example: there are three players in the cube, one left ("Betty"), middle ("Archie") and one on the right ("Veronica"). The player on the left (Betty) is automatically assigned Player Index 1 by the Kinect, and Player 1 is programmed to control the view of the symbol on Wall 1. Archie is Player 2 and assigned to Wall 2, and so on.

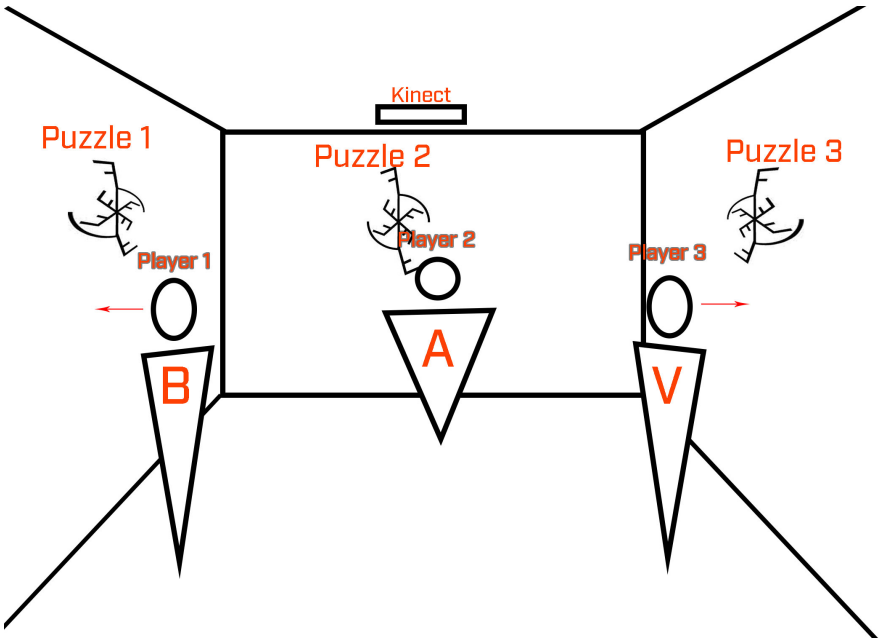


Figure 3: Three players at the start of the 3-D symbol puzzle

But the game play requires them to move around. Now Archie has crossed in front of Betty, moving to the left.

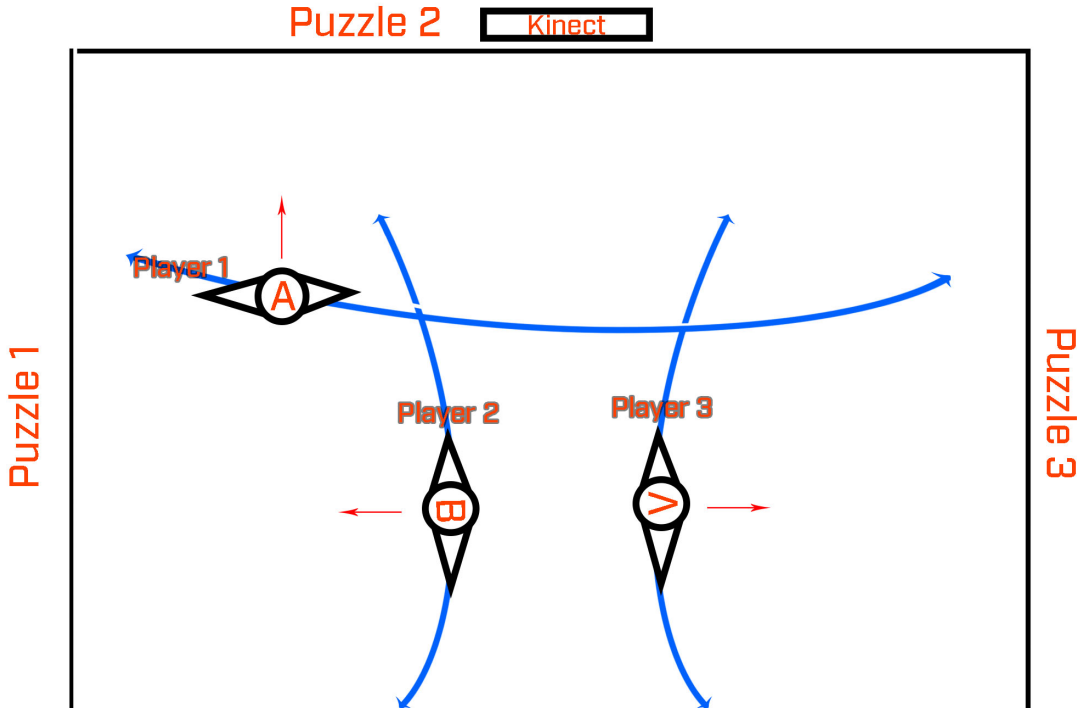


Figure 4: Archie crosses in front of Betty.

If the Kinect does not properly interpret this move, it may reassign Archie as Player 1, suddenly giving him control of the symbol on Wall 1, even though he is still facing Wall 2. Yet again, there is a simple answer if we let the technology inform the story structure. If we simply make the perspective puzzle Level 3, two people will already have been culled, leaving only two players who can each have half the space.

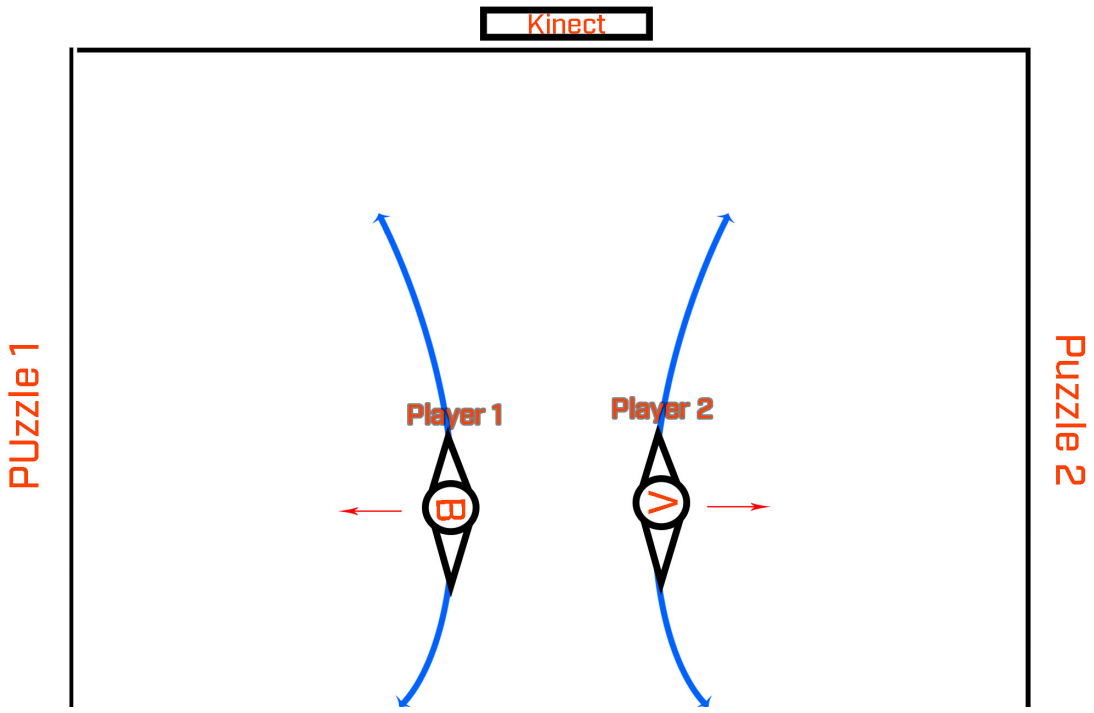


Figure 5: The 3-D symbol puzzle with only two players

Both these examples point to what I found to be the most creatively interesting part of the process: we often faced programming challenges which forced us to change the structure of the story telling, but they almost always changed it for the better. My favorite of all these moments was the day that Clint told me it would be vital for each player to enter one at a time. If everyone walks in the cube at once, the Kinect may not see the players at the back, creating huge interactivity problems. Equally important is that the guards cannot under any circumstance enter the cube: if they do, the Kinect will register the guards as players and, again, throw the player indices into chaos. While both of these circumstances seemed like huge limitations, we quickly realized we could use

them to our advantage. The players were already going to be assigned numbers; this gave us a chance to use them. The players enter the theater and - guided only by shafts of light - walk over to the guards, who make them wait outside the cube. Chad calls them by number, one by one, and tells them to enter the cube and stand on their number, which I project on the floor. After each player enters, Chad can look to us in the booth to make sure the Kinect has caught the player before calling the next number.

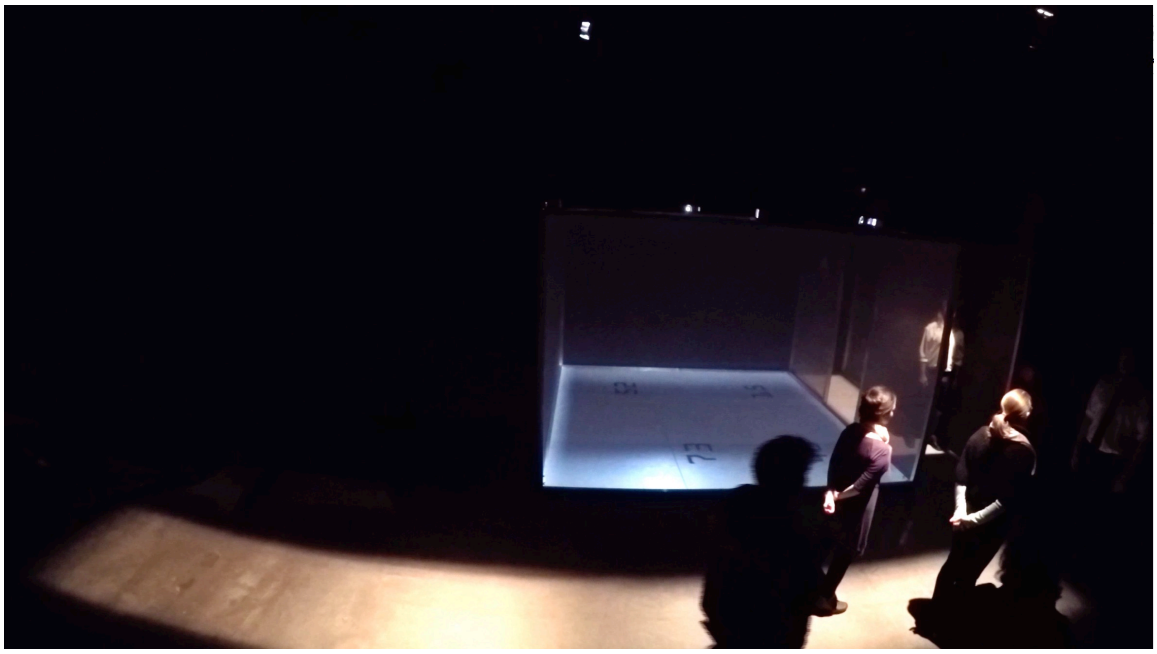


Illustration 7: Our view from the booth

This whole "scene" then works on two levels: it ensures that we start the game with each player properly indexed by the Kinect, and also gives the players a sense of unease – they are de-humanized through the use of their numbers and are given to know that there is a powerful, unseen entity watching the testing.

WORKING AGAINST A DEADLINE

As winter break drew to a close, I felt good about the work we had done developing the story and thinking through how the game works. I had set aside several dates for rehearsal/beta testing (i.e. bringing in an audience so the actors can put some of their work into practice and we can test the programming). Unfortunately, we were not really ready for these days. The programming was far behind where I was hoping to be. I had friends come and walk around the cube so that we could see how the Kinect senses them, but there was still no game per se. It took many weeks of effort on Clint's part to get the Kinect and the Spout plug-ins working in harmony in Unreal Engine. By this point I had hoped to have some visuals placed in the engine, and even have tiles move with the players, but no such luck. As winter break came to an end, I realized again that I had to find another programmer – one with a coding background – to help us out.

At the beginning of the semester, I was saved a collaborator of Lacey's (another advantage of co-producing!) Her programmer graduated from UT's Computer Sciences program and is still a member of their Facebook group. She offered to post my plea on the group's page, and some responded almost instantly. In this way I lucked into finding Kevin Sun, an undergraduate programmer with professional experience working in Unreal Engine. Kevin jumped in with both feet and we quickly began the race toward the finish line.

Finishing Touches; Tough Choices

Heading into technical rehearsals for our first set of performances, I was gravely concerned about our ability to finish everything. We had eight days of tech scheduled, and there were still big things missing. We still didn't have a single level working. At this point I decided I had to cut the last level. I was very excited about the 3-D perspective

puzzle, and also really felt it was necessary to fulfill the three-act structure I had planned. However, based on how long all of the other puzzles have take to program (we were going on 10 weeks of work now) I worried it couldn't be done. A difficult aspect of this work has been my inexperience working with programmers. While I have enough of an understanding of the mechanics at play to communicate with Kevin and Clint, I had never experienced the process. I knew intellectually that progress was being made, but when there were no visible results it was very hard to trust that everything was going as it should. In regards to the third level, however, we were in agreement: we had to cut our losses. The absence of this third puzzle means that we will now only be culling one person out of the game, which felt strange to me. But the game is called "The Culling", so I didn't see a way to cut the idea of player removal altogether.

I was also still struggling with the story. While many decisions had been made, I still didn't know how the play ends or how to feed the players story breadcrumbs throughout the gameplay. Here is what I did know: for the sake of establishing high stakes (i.e. why the audience should want to play this game) I wrote the following monologue which I filmed and the audience watches in the lobby before the game.

> ALEX. Welcome to The Culling. As you may know, our purpose here today is to delineate the humans among you from those with Mimeo DNA. Years ago, the creators of the Mimeos believed that as artificially intelligent life forms, they could not breed with humans. In only a few short years, that was proved to be false.
>
> In the time since, the intermingling of our kind has produced many benefits - interspecies beings created many of the advanced technologies which saved earth from global warming and killed the crop blights which threatened to end life on this planet. Yet now, a blight has hit our populations directly.
>
> The H4M4 flu has swept the world, affecting humans and mimeos equally, but differently. Because the treatment for humans is different from those with Mimeo

> DNA, we must separate the two populations in order to stop the spread of this horrific disease.
>
> The puzzles you will be asked to solve in this room are specifically designed to separate interspecies beings from humans so that they may be taken to a special facility for inoculation and treatment. You will have 15 minutes to solve all the puzzles. Dependent upon the results of this test, you will either be transported home or to Mimeo Central Housing.

This monologue serves to set up the world for the audience (in a video game it would be called a "cut scene"). I wanted the players to find out over the course of the play that the video did not tell the whole truth: the Mimeos are actually running this test and do not want to save the humans but rather leave them to die of the disease. There is a Resistance against the Mimeos working to save the humans. But how to give this information to the players? Many games use letters or notes left behind by "previous players" and hidden in the room, but I couldn't figure out how to make that work with guards watching the whole time. I considered a disembodied voice whispering hints to the players that help them with the puzzles and also fill in the blanks of the story, but again it felt inelegant. This prerecorded voice could not respond to all the possible outcomes of the gameplay. Eli came up an idea: texting the audience the hints. I decided to try it. I made giving me their cell phone number part of the audience reservation process and set up a Google Voice account so that I could text the players from a number they don't know, playing a member of the Resistance.

The week of opening we finally have a working puzzle! It is a huge relief to me, but tomorrow is our second to last day before the show and I again have friends coming, this time to a *final* dress rehearsal/beta test. We must be able to test the whole game, not just the first level. I have a hard conversation with Kevin about goals – he has been spending the last few days tweaking the first puzzle when I need him to move on: I tell

him that we need to start making the second level. He says, "I just want one really good, working level," and I realize what different perspectives we have on the project. With programming out of my hands for the last few weeks, I have been almost singly focused on the creation of the audience experience. But Kevin is a programmer; his goal is really good programming. As a leader, I have to make him understand that while we are creating a game, the game is just one part of a larger experience. It is going to be hard enough to structure all the information I want to give the audience into only two levels; there is no way I can do it in one. I tell him, "From a story-telling perspective we need a second level. You cannot tell a story in just one scene – it has to go somewhere." He understands and begins on the second level, which luckily comes together in just a day! When we bring people in for the final rehearsal, the second level is there but buggy. We all agree there is a lot to do tomorrow before opening, but we've done it! Finally all the pieces are in place and I could not be happier.

Unfortunately that elation doesn't last long. On show day and Lacey and I get a message from Clint while I am still in class: when he turned on the system in the morning all the projectors were just showing blue (i.e. they were not getting signal from the computer). Knowing that Clint has not been dealing much with the projection system, I assume it is a simple problem and Lacey will fix it before I am able to be there in a few hours. Unfortunately, when I walk in hours later everything is still blue. Lacey and I spend the next six hours trying every combination of troubleshooting possibility. We narrow the problem down to a single projector and finally realize that its input has gone bad. We solve the problem at 6pm, when the doors were supposed to open, and neither of us have had a chance to do any testing or rehearsal all day. We hold the doors until 6:30,

giving each of us fifteen minutes to quickly make sure everything is working – at least the way it was last night – and we open!

FINAL PLAY OR GAME SCRIPT

Below is the final game/play script. It contains many elements of a traditional theatrical script (actors lines, description of action), as well as descriptions of the puzzles, animations and hints that make up the game.

When the audience arrives, they are greeted in the lobby and told, "You are now Number X." From then on players are referred to as their number. They get a tag, like an audition number.

Just before they are let in, a video plays of a friendly but slightly creepy woman with a British accent in the same uniform as the others.

HEAD MIMEO (ALEX). Welcome to The Culling.

As you may know, our purpose here today is to delineate the humans among you from those with Mimeo DNA. Years ago, the creators of the Mimeos believed that as artificially intelligent life forms, they could not breed with humans. In only a few short years, that was proved to be false.

In the time since, the intermingling of our kind has produced many benefits - interspecies beings created many of the advanced technologies which saved earth from global warming and killed the crop blights which threatened to end life on this planet. Yet now, a blight has hit our populations directly.

The H4M4 flu has swept the world, affecting humans and mimeos equally, but differently. Because the treatment for humans is different from those with Mimeo DNA, we must separate the two populations in order to stop the spread of this horrific disease.

The puzzles you will be asked to solve in this room are specifically designed to separate interspecies beings from humans so that they may be taken to a special facility for inoculation and treatment. You will

have 15 minutes to solve all the puzzles. Dependent upon the results of this test, you will either be transported home or to Mimeo Central Housing.

The Facilitator ("Alex") calls them into the room by their number, one player at a time. She tells all players that the system inside tracks their position via the GPS on their phones, so they must have their phone with them and on.

They enter the room, the walls are blank - only a timer with 15:00 is visible in red - and the floors are white with their numbers in black, futuristic font. One guard (Eli) beckons them toward the Cube. Chad (looking to get confirmation from the both each time) calls them in one by one.

GUARD 1 (CHAD). Number __, please enter the Cube and stand on your number.

Once they are all on their numbers the British voice says "Your 15 minutes begins now."

LEVEL I

<u>Animation</u>: The floor falls away leaving only the outline of the missing squares. The walls brick up, the slide & knobs puzzles appear. The timer starts. On Wall 2, there is a slide puzzle with 6 pieces of a symbol. The pieces of the wall puzzle correspond to the squares in the floor. On Walls 1 and 3 there are silver level with red knobs which move the slider knobs for level 2.

<u>Game play</u>: By walking around, they can move the squares on the wall; their particles follow them.

<u>Hint</u>: If by 14:30 they have not figured out how to move the tiles, a text comes through on their phones "Need help?" immediately followed by "Try stepping to an adjacent square. Don't let the guards see these messages, and keep your wits about you."

When the players solve the first level, Guard 2 (Eli) comes to the door and removes the player who had their piece in place first, calling them by number. Guard 2 takes them to the Holding Room (green room). The guard tells the player:

GUARD 2. You have won, but please stay here for the moment. You must be debriefed before we can let you go home.

LEVEL II

Animation: The symbol comes together and shines, stays on Wall 2. Then particles form behind it and move to become the glow for the level 2 solve pattern on wall 4.

Game play: The pattern is the key to the knobs - the players swipe levers on the side walls to move the knobs into position to match the pattern on Wall 4.

HINT (via text message): "Take heed of the patterns around you. We are the only humans in this room."

Text to "winners": You don't know the whole story. Their motives are not what they seem.

ENDING (win or lose)

Animation: The clock stops ticking. Original female voice says, "Thank you. Please wait for further instructions."

The guards enter

GUARDS. Follow me. (They take the players into the holding room.)

Wait here for your debriefing. (Guard 2 goes to get Alex, while Guard 1 blocks the door.)

ALEX (Elise) enters.

ALEX. Hello, my name is Alex. I am here to tell you the results of your test.

The good news is that you have all proved yourselves to be human.

There is a transport train here to take you to quarantine. You may wonder why you are not being taken home. (Pause for acknowledgement.)

H4M4 cannot be passed from Mimeo to Mimeo, but only from human to Mimeo. In fact, the human race is a scourge upon the Mimeo world.

> As such, you will now be eliminated. Do not try to escape. We know you are human and we will find you.

Alex and the guards exit. The players are left alone in the room until they make the decision to leave. When they open the door, they find Kate waiting with surveys.

SUMMARY OF PERFORMANCE STRUCTURES

During the past few months, yet another set of performances was added to our schedules bringing the total up to three. Additional to the original plan was a set of performances for Explore UT, an event where the University of Texas invites K-12 students from all over the state to see what we do here and get them excited about higher education. As previously mentioned, I used the different series of performances to experiment with different structures for the piece. The table below highlights the differences between these three performances.

	SAC Blackbox (thesis presentation)	Explore UT	SXSW
Audience Type	College students and professors	Texas K-12 students	Anyone with a SXSW badge (i.e. adult professionals)
# of performances	3 sets of 6 (18 total)	2	1
Control over House Management	Yes	No	No
# of audience per performance	4	Unknown, up to 200	Unknown, up to 150
Goals	Explore the stated questions of audience agency and engagement	Make young people want to come to college and the University of Texas	Make the College of Fine arts look good
Time per performance	20 minutes	1 hour	7 minutes

Table 1: Variables taken into consideration for adaptation of the performance

Below is a summary of the basic elements of each performance. The structure has been modified from performance to performance to accommodate the changes in audience type, scheduling, and space considerations. Many elements of the show did not change from venue to venue. We worked from the above script for all three shows, however the hints were only used in the first performance. They were cut for Explore UT and SXSW because I would not know who the player would be and therefore would not have their phone numbers.

	SAC Blackbox (thesis presentation)	Explore UT	SXSW
Non-player audience present?	No	Yes	Yes
Player Recruitment	Online RSVP	Chosen randomly from audience	Audience Plants (i.e. pre-chosen people I know)
Demo following?	No	Yes	Yes
Audience Surveys?	Yes	Yes	No
Game Play Time Allotted	15 minutes	15 minutes	5 minutes
Audience Hints Given?	Yes, via text message	No	No

Table 2: Elements of structure adapted for the different sets of performances

Chapter 3: Outcomes, Recommendations and Limitations

OUTCOMES

The goal of this project was to explore two major research avenues:

1. The use of interactive technologies to create audience agency through **physical engagement**.
2. The use of story and audience involvement to create – through the **experience of being "othered"** – philosophical engagement.

As soon as I had decided on the basic structure of a physically interactive game, I felt I had accomplished the first of these. Thus the remainder of the research became focused on the creation of an experience that made participants feel "othered." After the experience, I asked the participants to fill out hand written surveys, which mostly asked open-ended questions but also included one Lickert scale. Analysis of these surveys was done by finding recurring words and themes in the responses, as well as collating the Licker scale data into a chart (below). Also included in this section are my own observation of the performances and the audience's visible reaction to the game/play.

Observing the Performance

I found watching the piece fascinating. Each group was different in the way they approached the puzzles, but the reaction when they walked in the room seems fairly universal. Conversation stops once they take in the scene before them and everyone files toward the guards – the dramatic lighting and unsettling music do their jobs in creating mood and directing the audience's movements. I had never done such a participatory piece before; it was thrilling and nerve-racking to watch, having no idea what might happen.

Most fascinating was what happened when things "went wrong" on our end. For instance, I apparently had not made it clear to my actors how many groups there were, so at the end of night one, before the last group was about to enter, I found out that Eli had left and Chad had already changed out of his costume. We decided that Chad could do the piece alone and he quickly began putting his costume back on, but Elise ended up letting the audience in before he was ready - by several minutes. At first the audience stands and waits, just as all the other groups have. Eventually though they began to believe they are not going to get any instructions and started to enter the cube on their own. Just then Chad came out and told them to exit the cube and wait for his instructions. No one seemed to know that this was not how everything was supposed to go, and several audience members told me afterward that it added to the experience for them.

Likewise the bugs in the second level seemed to work to our advantage. The levers did not work consistently, but only two audience respondents wrote anything about the game being buggy. Instead they wondered what they were doing wrong. It seems that for the most part the audience fully bought into the world and justified everything they experienced within that world. The goal was to create a world in which the audience feels "othered", and therefore powerless. The fact that they attributed the puzzles' bugs to their own inefficacy points to success in this area.

As the weekend of performances continued, watching it never got old. The group dynamics in this piece are endlessly intriguing. For instance, one group contained three graduate design students and a graduate design professor. During the first level, the players were silent. We could see each of the students begin to grasp the puzzle – they started to move in a grid pattern, facing the front wall and clearly connected their movement to the movement of the tiles. Several minutes in, the only person who had not made this connection was the professor. But it was still silent in the room! None of the

students seemed to be willing to fill the teacher in; I can only assume they were afraid of "calling out" someone who is an authority figure. Other groups, on the other hand, were extremely talkative and cooperative. It seems that these groups contained at least one stranger. In fact, in the group which solved the entire game the fastest (just under four minutes) no participant knows any of the other group members. My hypothesis is that it feels less risky to float an idea of how to solve the puzzles when one will not be failing in front of people one knows. In other words, it might feel easier for me to risk being wrong when no one I know will know that I was wrong.

Audience Survey Analysis

After the final monologue was delivered in the Holding Room, all actors exited the room, leaving the players behind with no guidance. They did not know that I as outside waiting to give them surveys until they decided to open the door on their own. It took most groups between 30 seconds and a minute to decide to leave on their own, although a few times they never opened the door. I had to enter the room on my own timing because they were sitting inside, patiently awaiting instructions.

I found that having a "captive audience" was very helpful in getting a large number of responses (59 out of 68). The original survey questions can be found in Appendix B. The questions I found most helpful in evaluating the performance for future iterations were:

2. What connections, if any, did you make between this play and real life?

3. How would you describe the world of the play?

4. This play made me feel…

5. Describe any moments that took you out of the play or felt confusing.

My actions in this performance made…

No impact Some impact Neutral A little impact A lot of impact

…on the story

Below I examine these results, question by question.

What connections, if any, did you make between this play and real life?

When asked this question, 59% (35) of all respondents associated the play with socio-political events of the past century. 30% drew parallels between the piece and current US events, specifically citing Trump, Trump-ism, Muslims, immigration or simply called the piece "prescient" or "timely". One such person wrote, "Being 'culled' based on intelligence felt very disturbingly prescient in the current political climate." The rest mostly spoke of xenophobia, segregation and fear of others, though some mentioned World War II, Soviet Gulags, the genocide in Syria, and internment camps. As the goal was to make a statement about the current wave of xenophobia in America, but there were no direct references to current political events, I was thrilled to see so many people make the connection. I also found it interesting that for many respondents the associations hit closer to home, such as "being one of many at a big university" or "I thought of office workers." My personal favorite of these was, "Trying to complete a task without feeling like you have all of the information feels a lot like grad school." While not exactly the connection I had in mind during the creation of the piece, these players did connect to the experience on a personal level, which is always a goal of theater making.

How would you describe the world of the play?

36% of respondents used words such as “stark”, “cold”, “sterile” or a similar adjective to describe the world of the play. As the choices of colors, textures and layout (black and white, cement blocks, stark lighting) were meant to evoke a cold, clinical space, I can conclude from this that these design elements were successful in creating the desired environment. 60% of respondents described the world of the play as “dystopian”, “post-apocalyptic” or “sci-fi”. Many of these respondents also described the environment as “unnerving” or “intense”. Of the fifty-five who responded to this question, only two did not use words that fit into these two categories. One of these said, “Frustrating cuz [sic] we almost solved it but the tech didn’t work.” The other said, “It was exciting but kind of hard to see.” Overall, I am able to determine that the design of the world, as well as the story set up in the beginning and ending monologues were clear.

This play made me feel…

Looking at this question, 49% used words such as “anxious”, “unsettled”, “nervous”, or “watched”. 12% expressed sadness or vulnerability, as if they truly had an experience that made them think empathically about others in vulnerable situations. Lastly, 29% of players expressed excitement and intrigue: either to do the games or at experiencing something new to them. Overall, 90% of respondents described feelings of connection, whether stemmed from excitement to play the game or a nervousness created by the environment. From these results I conclude that for most of the audience members, the experience met my stated goals of creating engagement; they were excited to engage with the puzzles and left feeling anxious or vulnerable, as they would (though likely to a much lesser extant) if they were placed in a similar situation in reality. From this I conclude that I have successfully imparted a small taste of the experience of being other.

Describe any moments that took you out of the play or felt confusing.

While I actually did not receive a lot of comments about things people found confusing beyond what they were supposed to find confusing, I was still very glad I asked this question as it was a source of much useful feedback. Many players were confused by the lack of directions. Others were unclear if they had the power to change things in the story. "An unclear understanding of how much we could 'rebel' without compromising the piece [sic]." Both of these feelings of confusion were purposeful – part of "othering" is a feeling of powerlessness often created by a lack of understanding of the rules of the world. Still there were some comments in this section which were helpful critiques. One player wrote, "I think the difficulty interacting with the phone. It drew back to real life but was also a little technically confusing when trying to do the puzzles." This made me realize that I had strayed from my original intent – I had wanted the audience to interact with the story without any intermediate devices, but then made their personal devices necessary to the storytelling. As I had originally posited, this took the audience out of the world of the play, reminding them too much of their own reality. Two others pointed to the bugs in the system that made it difficult to solve the puzzles. This result was only surprising to me as it was such a small number of respondents: only two people of 59 who mentioned this.

My actions in this performance made…impact on the story.

This was the only one of my survey questions that dealt with my guiding question regarding physical participation; looking back I believe another (more specifically phrased) question about this would have been useful to this research. 68% of respondents felt their actions had impact on the story, showing that they felt they had physical agency in the world. I did, however, also receive comments from audience members who felt they had little or no impact. The general consensus amongst these respondents was that they could not tell if whether they won or lost the game made a difference to the ending

of the play - a suspicion about which they were correct. These responses indicate that the question was interpreted differently amongst the participants: while some thought it was asking if their their literal, physical actions effected the play, others interpreted it as whether their solving of the puzzles changed the outcome. Nevertheless, audience members across the board physically engaged with the world simply by solving the puzzles.

Below is a breakdown of these responses:

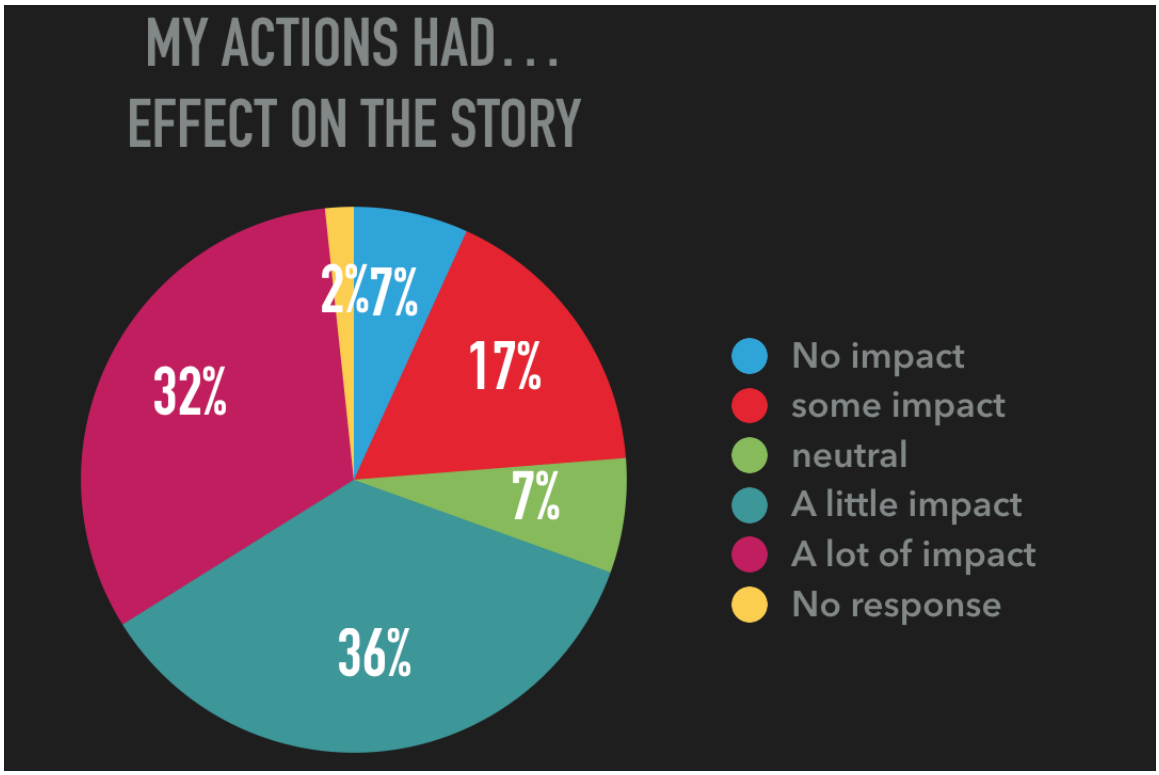


Figure 6: The Breakdown of Responses to Survey Question #6

LIMITATIONS

There are, of course, limitations to the conclusions we can draw from this work. Firstly, the participant sample size was small. Only sixty-eight people participated in this round of the research, and only fifty-nine of those filled out the surveys. Other major

limitations come from the heterogeneous nature of the participant sample: the vast majority of participants were associated in some way with the University of Texas Theater & Dance Department. While I do believe that this performance stretched the definition of a "play" by placing the audience as actor, the fact is that many participants are, or were, actors. Those of us who spend a lot of time thinking about - and participating in - different modes of performance are naturally more comfortable with the pushing of those boundaries. Also, since many of the players were my colleagues and friends, my thinking on the project had likely influenced them - either through my conversations with them personally or with their friends. While there were a few groups of participants that consisted of strangers we recruited from inside the Student Activity Center, the surveys were anonymous. Thus I have no way to more closely examine or weight their answers in comparison with the answers of people who knew me – or the project – well.

Another limitation in the future of this research is its lack of portability. On one hand, The Cube is quite portable if we are speaking in terms of theater sets – usually building a set and installing a projection system to cover it takes days, if not weeks. We were able to set up the entire structure and system in only a few hours for South By Southwest. Yet it still lacks the portability and ease of use of VR goggles or an AR app on a smart phone. It is for this reason that CAVE systems fell out of fashion with the advent of personal VR devices. In terms of the gaming industry, then, The Cube will never be in every home in America. It could, however, have applications in arcades as a group VR experience. One player wrote, "Love how it felt like VR - but REAL!"

REFLECTION AND BROADER GOALS

From the beginning of my time at the University of Texas, I knew I would have the opportunity to create a thesis – to become a generative artist in my own right. But until this fall, I had no idea who that artist would be. Through the course of this project, I learned more than I ever imagined I would. I had viewed the thesis as a kind of capstone project –a box full of all the skills I have learned here – yet I spent most of my time learning new skills. In a way, though, it was that little box of all the things I have learned. I've learned to teach myself new skills when I need them rather than limiting my ideas to things I know how to do. I have learned that as a leader one can never be too clear, never communicate too much, never show too much gratitude to one's collaborators. But most of all it taught me that I am a creator. It turns out that when faced with a void, I have a voice with which to fill it. As an artist I am interested in the struggles we all go through to merely exist in this world: from small difficulties like treating everyone with kindness to standing up for entire groups of strangers simply because we know it is right. I want to make art that inspires people to make change, that helps them see the world perhaps just a little bit clearer, and which makes me see the world through other people's eyes. With this thesis project I believe I have started down that path.

I also realized that I often need to bring in collaborators earlier in the process. Often I hesitate to do this because I feel the need to have all the answers – to present potential partners with a fully formed idea. But this is just not the case. Who wants to work on something that is already done, where there is no place for them to contribute creatively? Certainly I do not. For mine own process as well though, I need collaborators earlier. I could not figure out what this piece was until I had people to talk to who were invested in it. Without these other brains in the room, it is certain I could never have finished this piece. I am equally certain that had I brought them on earlier, it would not

have been such a mad dash at the end. I believe many of them also got a lot out of the experience. Kevin Sun, my Unreal Engine genius, found a new outlet for his skills and a love for the intersection of theater and video games, for instance. He is currently working on two more projects with Theatre and Dance graduate students.

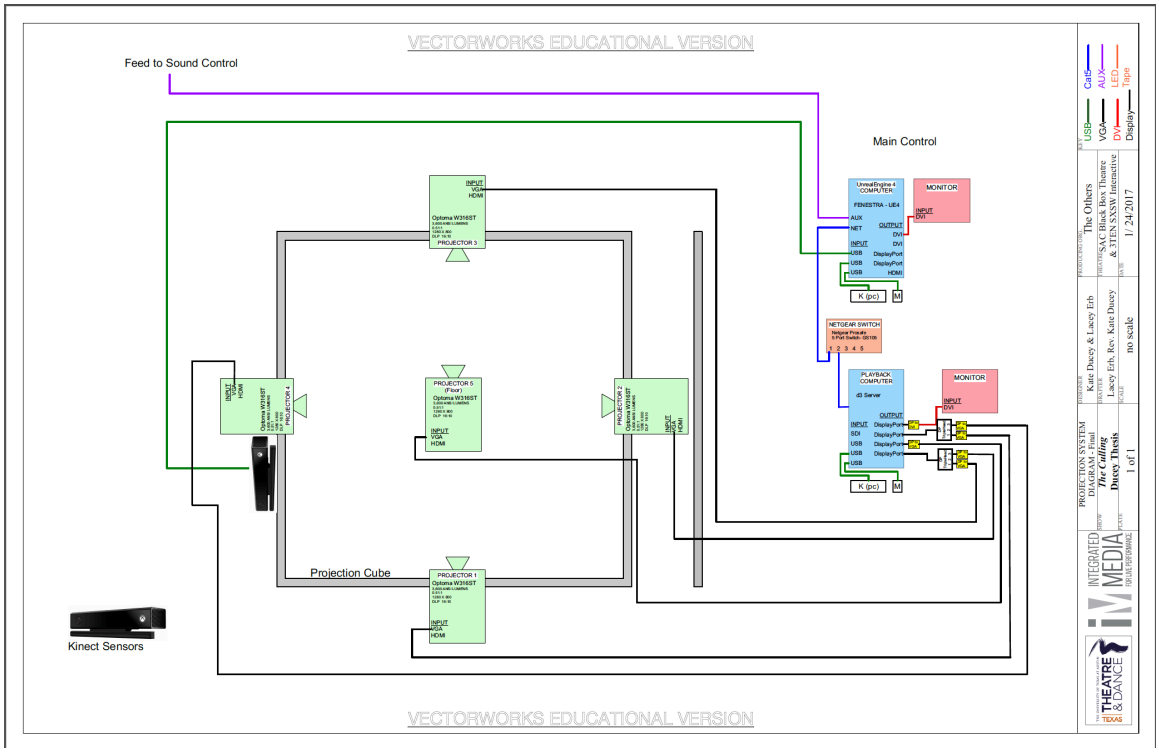
I consider this thesis will continue to have life in new forms. Certainly The Cube is a compelling interactive environment on which one can do almost anything. In fact, Lacey and I are possibly creating something new with it in China this summer. I cannot yet describe what this will be - other than another piece that focuses on audience interactivity - as we have not come up with it yet. The possibilities seem endless.

But I also believe The Culling could find a new life in a museum, such as a Holocaust Museum or any other museum dealing with discrimination. My audience members seemed to find it fun and frightening; it made them both excited and uneasy. The piece's inclusion in a museum setting would give the universal situation more specific context and weight, which could only serve to deepen the experience. Given more time and resources, I would like to refine to system to be more self-contained (i.e. not require human operators) like a regular video game. This would also serve to make it more compatible with a museum setting where technician cannot be standing by all day long.

In general I think the use of video game environments in live performance is compelling. If the technology were more integrated into the capabilities of the games engine, I believe more people would do this. Certainly it creates a performance on a smaller scale – only a few people at a time might feasibly participate – but I see that as a good thing. Film can reach the masses in a way that theater never will. Video games are accessible from ones couch. Theater is about community. How better to create that community than by forcing strangers to work together to make meaning?

Appendices

Appendix A: System Diagram



APPENDIX B: IRB CONSENT FORM AND SURVEY QUESTIONS

Post-performance Survey

Consent for Participation in Research

Title: The Culling

Introduction

The purpose of this form is to provide you information that may affect your decision as to whether or not to participate in this research study. The person performing the research will answer any of your questions. Read the information below and ask any questions you might have before deciding whether or not to take part. If you decide to be involved in this study, please read the informational statement at the end of this form and proceed to complete the survey.

Purpose of the Study

You have been asked to participate in a research study about the participatory theatre performance, *The Culling*. The purpose of this study is to document the experiences of performance attendees and to gauge audience reactions to the form and content of the participatory theatre performance.

What will you be asked to do?

If you agree to participate in this study, you will be asked to fill out an anonymous survey that will ask you questions pertaining to your experience at this performance. The survey should take no more than 5-10 minutes to complete and will not collect your name or any other identifying information.

What are the risks involved in this study?

The risks encountered in this study are no greater than those you experience in everyday life.

What are the possible benefits of this study?

You will receive no direct benefits from your participation; however, the results may help to benefit the development of the performance as well as to provide data that may influence the field of theatre and dance in terms of audience participation and storytelling.

Do you have to participate?

No, your participation is voluntary. You may decide not to participate at all or, if you start the study, you may withdraw at any time. Withdrawal or refusing to participate

will not affect your relationship with The University of Texas at Austin (University) in any way.

If you would like to participate, please acknowledge your consent by continuing on to fill out the survey. You will receive a copy of this form.

Will there be any compensation?

You will not receive any type of payment for participating in this study.

How will your privacy and confidentiality be protected if you participate in this research study?

Your privacy and the confidentiality of your data will be protected by not collecting your name or any other identifying information on the survey. Thus, the survey is anonymous; individual responses cannot be linked back to you and will only be seen by the research team.

If it becomes necessary for the Institutional Review Board to review the study records, information that can be linked to you will be protected to the extent permitted by law. Your research records will not be released without your consent unless required by law or a court order.

Whom to contact with questions about the study?

Prior, during or after your participation you can contact the researcher, Kate Ducey, at **773-656-7763** or send an email to kducey@utexas.edu for any questions or if you feel that you have been harmed.

Whom to contact with questions concerning your rights as a research participant?

For questions about your rights or any dissatisfaction with any part of this study, you can contact, anonymously if you wish, the Institutional Review Board by phone at (512) 471-8871 or email at orsc@uts.cc.utexas.edu.

By completing this form you agree to participate in this research study and have your comments included in a master's thesis paper which will be filed with the University. Please do not include your name, EID, social security number or any other identifier so that your comments may remain anonymous. If you do not wish to have your comments included in the paper, you may indicate that below, or simply choose not to fill out this survey.

Post-performance Survey
"The Culling" by Kate Ducey

6. What images or moments stand out to you from the performance?

7. What connections, if any, did you make between the performance and real life?

8. How would you describe the world of the play?

9. This play made me feel…

10. Describe any moments that took you out of the play or felt confusing:

11. My actions in this performance made…

No impact Some impact Neutral A little impact A lot of impact

…on the story

Please describe:

12. What else would you like to say about the performance or your experience of it?

Thank you!

APPENDIX C: IRB APPLICATION

1. Title
   The Culling – Audience Response Survey

2. Principal Investigator
   Kate Ducey, ked2257, Theatre & Dance

3. Purpose
   The purpose of this study is two-fold: to investigate how far I can push the field of participatory theater (in this case, all the way into the audience becoming actors in the story) and to question whether this format can be used to create empathy.

   The Culling is an immersive, interactive, theatrical video game experience. Four audience/players will enter a 12'x12'x8 cube (no ceiling) with projections on all sides. The projections on the walls contain puzzles for them to solve. They do so by moving around the space – the puzzle pieces follow their movements – until the pieces are all in place. This video game "framing" is the device by which I attempt to make the audience comfortable with, or even unconscious of, their elevation to the place of actor in the performance.

   As to the creation of empathy, this is where the theatricality of the experience comes in. I am hoping this experience - being told they will not be saved simply because they are different – will lead to the audience having empathy for those who are different from themselves and consider the consequences of seeing the world as divided into "us" & "them".

4. Procedures
   Background (not research-specific):
   When they arrive, audience members will check-in with the house manager/performer who will give them a number to pin to their shirts. They will be referred to by this number for the remainder of the performance.

   While waiting in the lobby, the audience will watch a video which explains the back story of the game/performance: Years ago, scientists created artificially intelligent beings called Mimeos which then proceeded to interbreed with humans, resulting in interspecies beings who may not even know they are interspecies. A disease is sweeping the world which kills both Mimeos and humans alike, though the treatment for each population is different. Thus the two species must be identified and separated in order to stop it from wiping out both races.

   Participants will be led into the theatre in groups of four by two actors playing guards. They are told they will have 15 minutes to solve three puzzles. A count down clock begins. At the end of each puzzle, one person will be separated from their fellow

audience members by a “guard” and seated in an adjacent waiting room. They will be told they have won, though for no apparent reason. Throughout the show the audience is also given clues which eventually lead to the conclusion that while the puzzles they are solving are meant to identify humans, the goal is not to save them. In fact the Mimeos are running this show, and are only interested in saving their own population from the humans who keep infecting them with the deadly disease.

Research-specific activity:
After the final puzzle is solved or the 15 minutes have elapsed, all attendees will be asked if they would like to participate, which will involve filling out a short, written survey. The survey should take no more than 5-10 minutes to complete and will be entirely anonymous.

a. Location

The performance will take place three times in different location: The University of Texas at Austin Student Activity Center Black Box Theater, The University of Texas at Austin Winship Drama Building, and 3Ten Austin as part of South By Southwest.

b. Resources

The University of Texas at Austin College of Fine Arts has funded the creation of the physical “cube” set and a small stipend for performers participating in the South By Southwest performance. All other funding will be provided by me personally.

c. Study Timeline

Data will be collected at the three performances: Feb. 3 & 4, March 4 & March 11, 2017. My thesis paper containing the assessment will be submitted by May 5, 2017.

5. Measures

I will use a qualitative methodology for post-performance assessment. The participants will be asked to stay and fill out a short paper questionnaire after the performance. The questions will concern their experience of the performance: the extent to which they felt immersed in the world and whether they connected the events in the performance to any events in the real world, past or present. The question items in the survey were designed specifically for this study.

6. Participants

a. Target Population

The target population for this performance is UT students and Austin community members, specifically adults. The maximum sample size for the study is no more than 500.

b. Inclusion/Exclusion

No audience members will be turned away, though children under 16 may be discouraged as the given situation of the play may be disconcerting. No one under 18 will be asked to participate in the survey.

c. Benefits

Participants will receive no direct benefit from participation. The results may help to benefit the development of the performance as well as to provide data that may influence the field of theatre and dance in terms of audience participation and storytelling.

d. Risks

Participants will not engage in any physically risky behavior. The participants may leave at any time. The risks of being in the study are expected to be no greater than everyday life. The survey will be anonymous such that responses cannot be linked back to an individual participant.

e. Recruitment

Participants will be recruited via flyers, the PI's personal website and a Facebook event invitation moderated by the PI on her personal Facebook account, just like a regular theatrical event. The promotional materials uploaded here will be used across all platforms.

At the February 3rd and 4th performances, the performance is designed to pull out attendees and gather them in a separate room until the last two attendees have joined the group. At this time, an announcement will be made that those interested in filling out the survey may stay behind while uninterested parties may leave. The PI will hand out the surveys, the first page of which will act as the consent document, and proceeding to fill out the attached survey will serve as indication of the participant's consent to participate.

The March 4th and March 11th performances will be held at Explore UT and SXSW events, which are open to the public/anyone with a SXSW pass. Therefore, recruitment will take place via word-of-mouth at the performances and will follow the same format as the Feb. 3rd and 4th performances in terms of distributing the consent forms/surveys.

f. Obtaining Informed Consent

I am requesting a Waiver of Documentation of Informed Consent. The research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context. The only record linking the subject and the research would be the consent document, the principal risk would be potential harm resulting from a breach of confidentiality, and the research is not FDA-regulated. Each subject will be asked whether the subject wants documentation linking the subject with the research, and the subject's wishes will govern.

The first page of the anonymous survey will act as the consent document and will also include the following statements: "By completing this form you agree to have your comments included in a master's thesis paper which will be filed with the University. Please do not include your name, EID, social security number or any other identifier so that your comments may remain anonymous. If you do not wish to have your comments included in the paper, you may indicate that below, or simply choose not to fill out this survey." By proceeding to fill out the survey, the participant is thereby acknowledging their consent to participate. Participants will be informed that they may retain the first page of the survey (the consent document) for their records.

7. Privacy and Confidentiality
   a. Written surveys will be collected in a small, private room with only myself and the participants.
   b. The paper versions of the survey will be kept in a locked cabinet in my office until such time as it can be destroyed. I will transcribe the surveys to a secure file that will be stored on UT Box, which is password-protected, to which only the research team will have access.
   c. The data will be kept until my thesis paper has been accepted by UT (i.e. May 5, 2017 at the latest).
   d. All surveys will be anonymous. Participants will be specifically told not to write their name or any other form of identification (such as EID) on their written surveys. The data will not be shared with other researchers.
   e. I will shred the survey forms and will permanently delete the data from UT Box on or before May 5, 2017.

8. Compensation
   No compensation will be given.

APPENDIX D: IRB EXEMPTION DETERMINATION LETTER

OFFICE OF RESEARCH SUPPORT

THE UNIVERSITY OF TEXAS AT AUSTIN

P.O. Box 7426, Austin, Texas 78713 · Mail Code A3200
(512) 471-8871 · FAX (512) 471-8873

FWA # 00002030

Date: 01/30/17

PI: Kathryn M Dawson

Dept: Theatre and Dance

Title: The Culling

Re: IRB Exempt Determination for Protocol Number 2017-01-0071

Dear Kathryn M Dawson:

Recognition of Exempt status based on 45 CFR 46.101(b)(2).

Qualifying Period: 01/30/2017 to 01/29/2020. *Expires 12 a.m. [midnight] of this date.*
A continuing review report must be submitted in three years if the research is ongoing.

Responsibilities of the Principal Investigator:

Research that is determined to be Exempt from Institutional Review Board (IRB) review is not exempt from ensuring protection of human subjects. The Principal Investigator (PI) is responsible for the following throughout the conduct of the research study:

1. Assuring that all investigators and co-principal investigators are trained in the ethical principles, relevant federal regulations, and institutional policies governing human subject research.

2. Disclosing to the subjects that the activities involve research and that participation is voluntary during the informed consent process.

3. Providing subjects with pertinent information (e.g., risks and benefits, contact information for investigators and ORS) and ensuring that human subjects will voluntarily consent to participate in the research when appropriate (e.g., surveys, interviews).

4. Assuring the subjects will be selected equitably, so that the risks and benefits of the research are justly distributed.

5. Assuring that the IRB will be immediately informed of any information or unanticipated problems that may increase the risk to the subjects and cause the category of review to be reclassified to expedited or full board review.

6. Assuring that the IRB will be immediately informed of any complaints from subjects regarding their risks and benefits.

7. Assuring that the privacy of the subjects and the confidentiality of the research data will be maintained appropriately to ensure minimal risks to subjects.

8. Reporting, by submission of an amendment request, any changes in the research study that alter the level of risk to subjects.

These criteria are specified in the PI Assurance Statement that was signed before determination of exempt status was granted. The PI's signature acknowledges that they understand and accept these conditions. Refer to the Office of Research Support (ORS) website www.utexas.edu/irb for specific information on training, voluntary informed consent, privacy, and how to notify the IRB of unanticipated problems.

1. Closure: Upon completion of the research study, a Closure Report must be submitted to the ORS.

2. Unanticipated Problems: Any unanticipated problems or complaints must be reported to the IRB/ORS immediately. Further information concerning unanticipated problems can be found in the IRB Policies and Procedure Manual.

3. Continuing Review: A Continuing Review Report must be submitted if the study will continue beyond the three year qualifying period.

4. Amendments: Modifications that affect the exempt category or the criteria for exempt determination must be submitted as an amendment. Investigators are strongly encouraged to contact the IRB Program Coordinator(s) to describe any changes prior to submitting an amendment. The IRB Program Coordinator(s) can help investigators determine if a formal amendment is necessary or if the modification does not require a formal amendment process.

If you have any questions contact the ORS by phone at (512) 471-8871 or via e-mail at orsc@uts.cc.utexas.edu.

Sincerely,

James Wilson, Ph.D.
Institutional Review Board Chair

APPENDIX E: PRODUCTION PHOTOGRAPHS

Illustration 8: Players solving Puzzle 2 at SXSW.

Illustration 9: Picture taken from Kinect footage of players solving Puzzle 2.

Illustration 10: Players solve Puzzle 1 at SXSW.

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